

Childlessness and the Economic Well-being of Older Americans

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Objectives. The study's purpose is to examine the relationship between childlessness and two key indicators of older Americans' economic well-being: income and wealth.

Methods. Using the Health and Retirement Survey, the study estimates this relationship and compares findings from standard ordinary least squares, random effects, quantile regression, and two propensity score models.

Results. Compared with married parents, childless married couples tend to have slightly more income and about 5% more wealth. Unmarried childless men enjoy no income advantage over unmarried fathers but have 24%–33% more wealth. Compared with older unmarried mothers, unmarried childless women have 12%–31% more income and about 33% more wealth. The strength of these relationships increases as one moves up the distribution of income or wealth.

Discussion. This study provides evidence on the relationship between childlessness and both income and wealth, including the first evidence for men. The findings may be useful for persons concerned about the determinants of childless adults' well-being as well as the long-run financial demands on public programs that provide income support, health and nursing home care, and social services for older Americans.

Key Words: Childlessness—Economic well-being—Income—Wealth.

IN 2006, 20.4% of women aged 40–44 years were childless by choice or because of infertility problems, compared with 17.5% in 1995 and 10.2% in 1976 (U.S. Census Bureau, 2008). For at least the next few decades, rising childlessness will be one factor that increases the ratio of older to working-age adults. As this ratio rises, either the working-age population will need to pay a larger portion of its income to support Social Security and health care for elderly people or the funding for those purposes will need to be reduced. Thus, childlessness is one contributor to the long-term financial pressures on Social Security, public health care programs, and the health care system. These macro impacts of falling fertility have received broad attention from researchers and policy makers (Feldstein, 2005; Lee & Skinner, 1999; National Research Council, 2001).

In addition to its macro impacts, childlessness may have important effects on individuals. In the domain of economic status, childless adults may retire with more assets because they do not incur the costs of raising children. Greater assets, in turn, would increase the retirement income and lower the likelihood of needing income-tested benefits. Conversely, childless adults may save less because they have lower incentives to leave bequests.

Similarly, childlessness may affect health status when one is older. For example, if childless adults enjoy higher consumption, including health care, when younger because a significant portion of their income was not devoted to supporting children, they may be in better health. Conversely, to the extent that children monitor their parents' health and identify

problems, although they are minor and can be treated more easily and at less cost, older parents will have better health.

The policy implications of such individual effects may be significant. Suppose childless adults, on average, have poorer economic and health status than parents. Then they are likely to require greater income support, health care, and social services compared with parents. If childlessness continues to increase, financial pressures on public programs that provide income support, health and nursing home care, and social services for older Americans will be even larger than the rising ratio of elders to working-age adults alone would imply. (Wolf, 1999, makes a similar observation.) Among the most important of such programs are Medicaid, Medicare, Supplemental Security Income (SSI), public housing, and social services provided by the Older Americans Act. Innovative public programs and private initiatives may be needed to address childless elders' needs.

A more open immigration policy could reduce financial pressures by lowering the ratio of older to working-age adults. But it would not affect demand for public- and market-based caregiving services for childless elders, who have no possibility of receiving care from children.

Alternatively, the childless may place fewer demands on public programs. This could occur if they have more assets, which would reduce their need for income assistance and let them pay for some health and social services that otherwise would be publicly financed. It might occur if childless adults enter their older years in better health because they could afford better health care earlier.

It is possible that older persons' demands for income support, health care, and social services are independent of parenthood status. If so, changes in the prevalence of childlessness would not affect programs' costs and caseloads.

The subject of this study is the relationship between childlessness and older Americans' income and wealth—two core indicators of economic well-being. The study provides the first evidence on this relationship for men. Just one prior study, Johnson and Favreault (2004), examines differences in these indicators between older mothers and childless women. Unlike prior research on economic, psychological, or any other social impacts of childlessness, the current study compares findings from four statistical estimators: standard OLS and logit, OLS and logit random effects, quantile regression, and propensity score models. The findings are a useful starting point for understanding the economic consequences of childlessness and, as childlessness becomes more prevalent, the policy importance of such consequences, keeping in mind the important limitations of these findings, such as defining childlessness in biological terms and, hence, not considering the consequences of step and adopted children.

Background and Possible Linkages Between Childlessness and Economic Status

Economic reasoning suggests several routes through which childlessness may affect economic status. Consider possible positive effects. Because not having children means not spending on their living expenses and higher education, childless adults may save more when working and accrue more assets. Childless adults can neither volunteer nor be asked for cash transfers to their children. Being childless means not having one or both householders take time off from work, so childless adults may earn more by working longer. Older childless persons also may earn more because of the returns to greater work experience when younger. And older childless women may earn more because they avoid the wage penalty of motherhood (discussed below). Higher earnings, whatever the reason, would tend to lead to higher savings and assets. Greater assets, in turn, would increase income in old age and lower the likelihood of one's being poor or needing income-tested transfers.

Now consider possible negative effects. Childless adults, with fewer financial demands, may work less or choose jobs that trade lower compensation for higher nonfinancial rewards (e.g., a career in the arts instead of the civil service) and thereby have less income. Such choices could reduce savings, too. Childless adults cannot receive transfers from their children. Adult children may help their older parents manage their financial affairs better and generate more investment income. Childless adults may have less desire to leave bequests and thereby save less.

There is little evidence whether, on net, the possible positive or negative economic effects are more important or whether they offset each other. Research on the effects of childlessness for American elders examines mainly psycho-

logical well-being or the availability and provision of instrumental support and care (Allen, Blieszner, & Roberto, 2000; Bachrach, 1980; Hogan & Eggebeen, 1995; Koropecj-Cox, 1998, 2002; Zhang & Hayward, 2001). Despite reasons to think that childless elders fare worse in both domains, they generally fare about the same as parents (Allen et al., 2000; Zhang & Hayward, 2001), other things being equal. Similarly, research on the effects of childlessness for elders in other countries addresses mainly psychological well-being or instrumental support (Chou & Chi, 2004; Cwikel, Gramotnev, & Lee, 2006; Jeffries & Konnert, 2002; Larsson & Silverstein, 2004; Wu & Hart, 2002; Wu & Pollard, 1998).

A few studies examine relationships among family structure, social support, and use of nursing home services. Freedman (1996) finds that having a living daughter or sibling is associated with a lower likelihood of being admitted to a nursing home, but having a living son is not. Aykan (2003) reports that childlessness raises the risk of nursing home use for women but not men. Lakdawalla and colleagues (2003) report a negative relationship between number of living children and entering a nursing home for persons aged 65 years and older.

Johnson and Favreault's (2004) study, the economic analysis most closely related to this one, finds that women aged 65–75 years who were childless or raised children outside of marriage had about the same wealth and same probability of being poor, and both were economically worse off than continuously married mothers. A literature search uncovered no other studies of the direct relationship between childlessness and conventional indicators of elders' economic well-being. The one study of retirement that examines childlessness (Szinovacz, DeViney, & Davey, 2001) finds mixed relationships with the likelihood of retiring for Americans aged 55–75 years. Mellor (2001) reports that the presence of children and other potential informal caregivers is unrelated to buying or intending to buy long-term care insurance. In other countries, analyses of how childlessness affects elders' economic outcomes are similarly rare (Dykstra & Wagner, 2007; Hank, 2004; Rempel, 1985).

Because the wages of working-age persons help determine retirement income and savings, evidence on how parenthood affects wages in early and mid-adulthood is also relevant to understanding the impact of childlessness on elders' economic status. The literature on this issue suggests that the impacts are highly gendered. American mothers' wages are significantly lower than wages of women without children after controlling for work experience, education, and other relevant characteristics (Budig & England, 2001; Folbre, 1994; Waldfogel, 1997, 1998). Estimates of the net difference range from 5% to 15%. Fathers' wages, in contrast, do not fall relative to men without children and may even rise slightly (Lundberg & Rose, 2000).

Though theory does not yield a clear prediction of the direction of effect, intuition and casual polling suggest that childless older adults are likely to be financially better off.

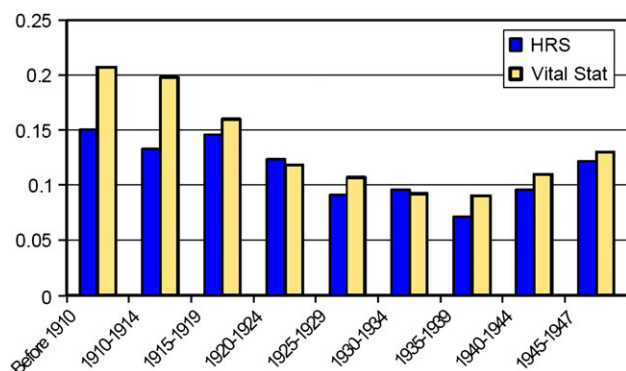


Figure 1. Proportion of women who never had biological children, by birth cohort.

This seems especially likely for wealth because even if a childless couple or person earned less, savings are likely to be higher if the lifetime reduction in earnings was less than what the couple or person would have spent on children. Childless elders could enjoy more leisure, more nonpecuniary rewards, or both and still accumulate more wealth.

The adverse impact of motherhood on working-age women's wages suggests that childless single women and couples will have higher incomes and assets later in life relative to single mothers and couples with children. Because parenthood is not associated with lower wages for fathers, childless single men may not be financially better off later in life relative to single male parents. Thus, the economic consequences of childlessness may differ by gender and type of household.

METHODS

The Health and Retirement Survey (HRS) provides the data. The HRS is a federally funded, ongoing panel study started in 1992. It reinterviews subjects biannually, with proxy interviews after death. Hispanics, Blacks, and Florida residents are oversampled.

Initially, the HRS included persons born during 1931–1941 (and their spouses, if married, regardless of age). In 1993, the Assets and Health Dynamics Among the Oldest Old (AHEAD) survey started collecting data on persons born in 1923 or earlier. In 1998, HRS and AHEAD data were merged and two complementary samples were added: the War Baby sample of persons born between 1942 and 1947 and the Children of the Depression sample of persons born between 1924 and 1930. The expanded HRS is representative of all persons over 50 years old in the United States in 1998 and includes more than 26,000 persons.

This study uses data from the 2002 wave of the HRS. The sample includes all respondents who have information that establishes whether they were “never a parent,” as defined below. The sample contains 15,334 persons. Except for Figure 1, all estimates use unweighted data.

Dependent Variables

The study examines two principal indicators of economic well-being: income and wealth. Total household income is the pretax sum (in 2002 dollars) of household earnings, capital income, pension income, Social Security retirement and disability income, SSI, unemployment insurance, other government cash transfers, and food stamps. This measure is similar to the Census Bureau's cash income measure, except for the inclusion of food stamps.

Household net wealth equals the sum (again in 2002 dollars) of all wealth components reported in the HRS, less all debt, including mortgages. The components include primary residence, other real estate, vehicles, private businesses, checking, savings and money market accounts, certificates of deposit, government savings bonds, Treasury bills, individual retirement accounts (IRAs), Keough accounts, stocks and mutual funds, bonds and bond funds, and miscellaneous other assets such as rights in a trust. Because the wealth distribution is highly skewed, the analysis also gauges wealth using three dummy variables: wealth of at least \$25,000, \$100,000, and \$500,000. These represent approximately the 15th, 40th, and 80th percentiles, respectively of the 2002 wealth distribution in the HRS.

Measuring Childlessness

A straightforward definition of a “childless” person is someone who was never a biological parent. I use the HRS question about the number of a respondent's biological children to create a dummy variable equal to 1 if the person reports “never a biological parent,” and 0 otherwise. Information about living biological children allows construction of an alternative dummy variable for having “no living children.” Preliminary work indicated that the two measures yield similar results. Because the *never a parent* measure has more valid responses, I use it to maximize the sample size.

Figure 1 compares data from the HRS and the National Vital Statistics System on childlessness. The HRS columns show the proportion of childless women by birth cohort. The Vital Statistics figures show the proportion of women in the cohort who reported having no biological children when surveyed at age 40–44 years. The series match fairly well except for the two oldest cohorts. The columns are not fully comparable because some women age 40–44 years when included in Vital Statistics data would have died by 1998. For example, a woman born in 1915 could have been in the Vital Statistics survey during 1955–1959 and may well have died by 1993, the first year AHEAD surveyed persons born in 1915. That the Vital Statistics values are larger for all but one cohort suggests that women without children at age 40–44 years had higher mortality than mothers.

Higher mortality is probably a source of selection bias. For describing differences in the economic well-being of childless elders and parents and the implications for public policy, we need not be concerned about selection based on

earlier behavior. But to identify causal relationships between childlessness and economic well-being, selection must be addressed. The *Estimation Methods* section discusses this issue.

Other Explanatory Variables

The regressions include available information on exogenous, personal, and family background characteristics that many previous studies have demonstrated are typically associated with the outcomes. The dummy variable for gender equals 1 for women. There are race and ethnicity dummies for Black, White Hispanic, and non-White Hispanic, with *other race/ethnicity* as the omitted category. Age is captured by eight dummy variables for the birth cohorts: 1910–1914, 1915–1919, ..., 1940–1944, and 1945–1947. (The last birth year in the HRS is 1947.) The omitted category is *born before 1910*. The dummies for religious affiliation are Protestant, Catholic, Jewish, and other, with *no religion* as the omitted category. There are dummy variables for being born outside the United States, English not being the first language, and veteran status. Most models include years of education and a dummy variable for having never married. Because poor health status as a child is likely to hinder future financial success, the models also include a retrospective self-assessment using the standard 1 to 5 scale (excellent, very good, good, fair, and poor), with larger values indicating worse health.

Two family background characteristics well known to be related to adult economic status are number of living siblings and the economic status of the family of origin. The latter is captured by a respondent's retrospective perceptions and specified as a set of dummy variables for the categories "well off," "average," and "poor," with "varied" as the reference group. Initial models included mother's and father's education. Because neither was significant and many respondents do not report this information, to increase sample size, I dropped them.

Estimation Methods

The study first estimates OLS models for income, wealth, and their logarithms and logit models for the other outcomes. The models take the form:

$$y_i = \alpha + \beta X_i + \gamma C_i + \varepsilon_i,$$

where y is the outcome, X is a vector of personal and family background characteristics, and C is the indicator for childlessness.

Because the distributions of income and wealth are highly skewed and the relationship between childlessness and these outcomes may well vary across the distributions, I also present findings from quantile regressions for income and wealth. The quantile, OLS, and logit regressions include the same explanatory variables.

Though the OLS and logit models include many controls, the estimates may be biased because of selection. For ex-

ample, suppose persons who highly value financial success chose not to have children and focused their efforts on monetary rewards. Then an unobserved factor—attitude toward financial success—would likely be responsible for part or possibly all of any observed association between childlessness and wealth. No prior study addressed selection in its empirical work.

If most childlessness were involuntary because of genetic endowments or health conditions that prevented successful pregnancy and gestation, endogenous selection would be minor and likely to have little effect on the estimates. The HRS, though, lacks information to distinguish persons who did not want children from those unable to be biological parents.

It is obviously impossible to obtain experimental data to generate an estimate of γ —the effect of the "treatment" of being childless—that is unbiased by self-selection. Lacking experimental data, a common approach to address selection is to include person or family fixed effects. This is infeasible here because childlessness is time invariant for each person and the HRS lacks sibling data.

Random effects models can produce consistent estimates that account for unobserved heterogeneity if it is valid to assume that the unobserved effect is uncorrelated with all other explanatory variables. Because this assumption rules out the possibility that one or more unobserved characteristics are correlated with childlessness, random effects models are unlikely to adequately control for selection in this context. Nonetheless, because it is useful to explore the stability of the results under different modeling techniques, I present random effects estimates using the first six waves of the HRS, which provide multiple observations for most respondents.

Nonparametric propensity score models (Rosenbaum & Rubin, 1985) do not impose strong restrictions on the functional form of the relationship between childlessness and the outcomes. I use them to explore the results' sensitivity to the linearity assumption, as have several other studies of the consequences of demographic outcomes (Chevalier & Viitanen, 2003; Gertler, Levine, & Ames, 2004; Levine & Painter, 2003).

In this context, the propensity score is the probability of being childless, conditional on a set of independent variables. I estimate the score using a logistic regression that includes the explanatory variables described earlier, except for education and the dummy for having never married, which may have been endogenously determined with fertility decisions. These variables are representative of those used to model other fertility choices such as nonmarital childbearing (Dyer & Fairlie, 2004; Huang, 2002; Plotnick, Garfinkel, McLanahan, & Ku, 2007). This specification passes the balancing test (Smith & Todd, 2005) for this study's three subsamples: married persons, unmarried men, and unmarried women. The distribution of propensity scores for childless persons and those who are parents closely

overlap within the region of common support. This indicates that there are an ample number of cases with parents (the controls) that are well matched with each childless case.

The average treatment impact is estimated with two alternative matching procedures. "Radius matching" matches a childless case to all cases with children that have propensity scores within .0005 of the childless case's score. When multiple control cases fall within the radius, their average outcome is compared with the childless case's outcome. The "Epanechnikov kernel" approach matches a childless case to all cases with children that have scores within the specified bandwidth of the kernel. When multiple control cases fall within the bandwidth, their kernel-weighted average outcome is compared with the childless case's outcome. Standard errors are bootstrapped.

I also transformed the propensity scores to create weights for OLS and logit regressions (Imbens, 2004, citing Robins & Ritov, 1997). These "doubly robust" models include both X and C . Because the estimates closely resemble those from simple OLS and logit, the tables omit them.

Propensity score methods rely on the "conditional independence assumption": All factors related to receiving a treatment are observed and measured (Black & Smith, 2004); then, conditional on those factors, the choice between treatment and control status is not influenced by the outcomes resulting from the choice. Such models do not satisfactorily solve the selection problem because unobserved characteristics are likely to influence both being childless and an outcome. If the treatment and control groups differ in unobserved ways, between-group differences may reflect those differences rather than the treatment.

Some studies use instrumental variables to address selection. The challenge is finding variables that help capture factors that affect childbearing decisions over a long period—roughly ages 18–40 years—but are not controlled by respondents and are unlikely to have directly affected economic status. In the public use files of the HRS, I was unable to find variables that both explain a significant amount of variation in the probability of childlessness and are theoretically plausible instruments.

RESULTS

Table 1 reports all variables' means and standard deviations. Overall, 9.8% (1,507 cases) of the sample report never being a biological parent. Comparisons of means tests indicate that childless persons are less likely to be Hispanic and more likely to have been born early in the 20th century. The childless are less likely to not have English as their first language and to be Protestant. They have fewer siblings, report slightly better economic status as children, and average 0.53 years more education.

The lower part of Table 1 presents data for the outcomes. Mean income is \$45,114. Mean wealth equals \$314,100.

Most respondents have net wealth of \$25,000 or more; 64% have at least \$100,000 and 19% have at least \$500,000.

Comparisons of means indicate that the childless do not differ from parents in mean income and have slightly more wealth. Though the difference of \$15,000 is statistically insignificant, childless persons are significantly less likely to report net wealth under \$25,000 and more likely to report having at least \$500,000. All tables omit results for the dummy variables for wealth because they are consistent with results from the linear models.

Full Sample Regression Results

Table 2 presents four nested models using the full sample. Model A includes simply gender, race/ethnicity, birth cohort, and wave. Model B adds all other exogenous background characteristics. Model C then adds years of education. Model D also includes a dummy variable for having never married. Because childlessness, education, and marital status are mutually endogenous, the results in Models C and D and in later tables should be viewed as correlative, not causal.

Model A suggests that childlessness is unrelated to income or receipt of income-tested benefits. Childlessness shows a marginally positive association with wealth. Model B yields similar findings. Adding education (Model C) changes the picture to one in which the childless appear to be worse off. The coefficients on the childless dummy are negative for income (with one significant at $p > .01$). Childlessness is now associated with less wealth. The results of Models A and B appear to reflect the economic advantages of childless elders' greater schooling (see Table 1) rather than childlessness per se.

Childless persons are far more likely to have never married (19.8% vs. less than 1% for parents). Because never-married persons lacked the financial advantages of having lived in a two-adult household, Model C's negative associations between childlessness and the outcomes may be biased by ignoring this distinction in marital status.

Model D confirms this reasoning. Net of schooling and being ever married or not, childlessness is associated with greater income and wealth. The point estimates imply that childless persons average about 5% more income and 9% more wealth.

Results for Subgroups Based on Marital Status and Gender

Because of the strong relationship between income and wealth and both marital status and gender, Tables 3–5 present separate findings for currently married persons, currently unmarried women, and currently unmarried men using four estimators—simple OLS/logit, two propensity score estimators, and random effects. For the two currently unmarried samples, the models include a dummy variable to distinguish the widowed and divorced from those who

Table 1. Descriptive Statistics for Explanatory and Outcome Variables, Full Sample, Parents, and Childless Persons

Explanatory variable	Full sample		Was a biological parent		Never was a biological parent	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>
Never a biological parent	0.098	0.298	—	—	—	—
Female	0.571	0.495	0.571	0.004	0.575	0.013
Race/ethnicity						
African American	0.121	0.326	0.121	0.003	0.122	0.009
White, Hispanic	0.054	0.227	0.056***	0.002	0.039	0.005
White, non-Hispanic	0.805	0.396	0.804	0.003	0.815	0.010
Birth cohort						
1910–1914	0.035	0.184	0.032***	0.002	0.067	0.006
1915–1919	0.071	0.256	0.076***	0.002	0.099	0.008
1920–1924	0.114	0.318	0.113	0.003	0.124	0.008
1925–1929	0.137	0.344	0.138	0.003	0.123	0.008
1930–1934	0.170	0.376	0.173**	0.003	0.149	0.009
1935–1939	0.200	0.400	0.205***	0.003	0.153	0.009
1940–1944	0.179	0.383	0.179	0.003	0.176	0.010
1945–1947	0.081	0.274	0.080	0.002	0.091	0.007
Foreign born	0.082	0.274	0.083	0.002	0.072	0.007
English not first language	0.054	0.225	0.056***	0.002	0.035	0.005
Religion						
Protestant	0.645	0.479	0.647**	0.004	0.621	0.013
Catholic	0.269	0.444	0.270	0.004	0.266	0.011
Jewish	0.023	0.151	0.023	0.001	0.022	0.004
Other religion	0.012	0.109	0.011***	0.001	0.021	0.004
Number of living siblings	2.75	2.36	2.77***	.020	2.51	.057
Self-rated health as a child (1 = excellent; 5 = poor)	1.82	0.978	1.82	0.008	1.86	0.026
Family of origin economic status						
Well-off as a child	0.059	0.236	0.057**	0.002	0.073	0.007
Average as a child	0.612	0.487	0.613	0.004	0.605	0.123
Poor as a child	0.318	0.466	0.319	0.004	0.312	0.012
Veteran	0.257	0.437	0.256	0.004	0.261	0.011
Years of education	12.23	3.177	12.18***	0.027	12.71	0.084
Never married	0.024	0.153	0.005***	0.001	0.198	0.010
Outcome ^a						
Income	45,114	41,923	45,194	354	44,378	1,145
Log(income)	10.302	1.167	10.308**	0.010	10.245	0.030
Net wealth (1,000's)	314.1	409.14	312.6	3.5	327.8	10.9
Log(net wealth)	11.692	1.857	11.699	.016	11.628	0.052
Net wealth ≥\$25,000	0.860	0.347	0.863***	0.003	0.835	0.010
Net wealth ≥\$100,000	0.637	0.481	0.638	0.004	0.636	0.012
Net wealth ≥\$500,000	0.194	0.396	0.192*	0.004	0.210	0.011
Number of cases	15,334		13,827		1,507	

Notes: Bold indicates that there is a significant difference between the means of parents and the childless.

^aAll monetary outcomes are in 2002 dollars.

*Difference with childless significant, $p < .10$; **Difference with childless significant, $p < .05$; ***Difference with childless significant, $p < .01$.

never married and, consequently, had no opportunity to accumulate wealth while part of a married couple. Because of the ambiguous meaning of cohabitation in the United States, these models exclude cohabiters.

The subsample results exhibit important differences in the patterns and magnitudes of the relationships between childlessness and economic status. Model D's full sample estimates masked those differences.

Childlessness among married persons is consistently associated with greater income. The OLS coefficient is insignificant, but the two propensity score estimators yield substantively large and strongly significant income differences. The difference of \$5,023 produced using Epanechnikov kernel matching is 9% of this subsample's mean income. The random effects specification also shows a significant relationship between childlessness and income. The

larger sample appears to be responsible for this difference with the OLS result because the coefficient is 17% smaller, but the standard error fell 33%. The log(income) results are all positive, but only the propensity score models yield significant estimates. Childlessness is associated with greater wealth and log(wealth) in all models. Significant estimates appear only for the propensity score models, and two of them are marginally significant ($p < .10$).

For unmarried men, childlessness is unrelated to income. It is positively related to wealth and log(wealth), with most estimates statistically significant. The magnitudes of the significant relationships are large. A predicted wealth difference of \$51,300 (\$71,000) equals 24% (33%) of this group's mean wealth.

Unmarried women's economic status is most strongly related to childlessness. All estimators predict large, positive,

Table 2. Estimated Coefficient for the Childless Dummy Variable, Full Sample, and Alternative Specifications

Outcome	Specification							
	A. Race/ethnicity, gender, and cohort		B. All exogenous characteristics ^a		C. Model B+ education ^b		D. Model C+ never married	
	β (SE)	Adjusted R^2	β (SE)	Adjusted R^2	β (SE)	Adjusted R^2	β (SE)	Adjusted R^2
Income	145 (1,060)	.154	230 (1,066)	.181	-1,552 (1,024)	.246	2,444** (1,103)	.251
Log(income)	-.038 (0.030)	.112	-.036 (0.030)	.128	-.080*** (0.029)	.178	.053 (0.031)	.185
Net wealth (1,000s)	18.4* (10.9)	.059	18.8* (11.0)	.083	2.9 (10.7)	.138	28.4** (11.6)	.140
Log(net wealth)	-.041 (0.048)	.108	-.037 (0.048)	.130	-.120*** (0.047)	.200	.054 (0.050)	.204
Number of cases	15,102		14,485		14,460		14,451	

Notes: Bold shows the significant coefficients. Samples sizes reflect omission of cases with missing values.

^aAdds dummies for being foreign born, not speaking English as the first language, religion, economic status as a child, number of siblings, and self-rated health as a child. The categories for the dummy variables are as in Table 1.

^bYears of education. Also includes veteran status dummy because, like education, it is a choice variable for women and some of the men.

*Significant at $p < .10$; **Significant at $p < .05$; ***Significant at $p < .01$.

and significant income differences. The range of \$3,938–\$7,135 equals 17%–31% of this group's mean income. The logarithmic estimates imply an income difference of between 12% and 19%. The predicted wealth differences range from \$36,200 to \$78,400 ($p < .01$). A middle range estimate of \$60,000 is 33% of this group's mean wealth. Most of the log (wealth) results, though, are insignificant.

Quantile Regression Estimates

Table 6 presents quantile regressions for the income and wealth measures. Column 1 shows the corresponding OLS results from Tables 3–5. The remaining columns show the coefficient on the childless dummy at the 10th, 25th, 50th, 75th, and 90th percentiles.

Among married persons, the quantile estimates show little difference from the insignificant OLS results. One of the 20 quantile coefficients is significant ($p < .05$), or about what one would expect at random. If there is a positive relationship between income and childlessness, it is only in the distribution's upper tail.

For unmarried men, Table 6 confirms the absence of a significant relationship between childlessness and income. Quantile estimates indicate that the positive relationship between childlessness and wealth exists largely in the mid-

dle and upper middle part of the wealth distribution. The positive average relationship with wealth in Table 4 masked large differences in the strength of this relationship across the wealth distribution.

For unmarried women, the OLS estimates hide substantial differences across the income and wealth distributions. Quantile models suggest that childlessness has no relationship with income and wealth in the lower tail of either distribution. The relationship becomes marginally significant at the 25th percentile and strongly significant in the middle and upper end. The magnitudes of the relationship steadily increase as one moves up each distribution, with the minor exception for the 75th percentile of the log(wealth) distribution, and become substantively large.

DISCUSSION

The conceptual framework is ambiguous about whether childless older individuals and couples will tend to be economically better off than otherwise similar parents. This study's empirical evidence on current income and wealth resolves the ambiguity in favor of the childless. Childlessness has the strongest positive relationship with unmarried women's economic well-being. That is, the benefits of childlessness (costs of parenthood) are strongly gendered. These

Table 3. Estimated Coefficient for the Childless Dummy Variable for Married Persons Using Different Estimators

Outcome	OLS or logit		Epanechnikov kernel matching ^a	Radius matching ^a	Random effects	
	β (SE)	Adjusted R^2	Difference (SE)	Difference (SE)	β (SE)	Adjusted R^2
Income	2,532 (1,576)	.230	5,023*** (1,890)	7,513*** (2,226)	2,095** (1,053)	.238
Log(income)	.033 (0.035)	.170	0.071*** (0.025)	0.095*** (0.030)	.017 (0.021)	.175
Net wealth (1,000s)	15.2 (16.9)	.141	30.6** (13.6)	31.0* (17.3)	16.8 (11.5)	.135
Log(net wealth)	.027 (0.052)	.217	0.074* (0.044)	0.064 (0.054)	.013 (0.039)	.211
Number of cases	9,255		9,255	9,255	58,091	

Notes: Bold shows the significant coefficients. Specifications are identical to those in Table 2, Model D.

^aBootstrapped standard errors (SEs). Propensity score models do not have goodness-of-fit statistics.

*Significant at $p < .10$; **Significant at $p < .05$; ***Significant at $p < .01$.

Table 4. Estimated Coefficient for the Childless Dummy Variable for Single Men Using Different Estimators

Outcome	OLS or logit		Epanechnikov kernel matching ^a	Radius matching ^a	Random effects	
	β (SE)	Adjusted R^2	Difference (SE)	Difference (SE)	β (SE)	Adjusted R^2
Income	656 (2,122)	.148	-1,424 (2,660)	493 (2,552)	1,717 (1,828)	.191
Log(income)	-.006 (.115)	.076	-0.056 (0.114)	-0.096 (0.100)	.041 (0.076)	.100
Net wealth (1,000s)	51.3* (27.3)	.134	63.7*** (22.1)	71.0*** (26.2)	53.9*** (18.9)	.126
Log(net wealth)	.157 (0.175)	.171	0.109 (0.173)	0.183 (0.171)	.284** (0.122)	.196
Number of cases	1,167		1,167	1,167	5,927	

Notes: Bold shows the significant coefficients. Specifications are identical to those in Table 2, Model D, except no dummy for gender.

^a Bootstrapped standard errors (SEs). Propensity score models do not have goodness-of-fit statistics.

*Significant at $p < .10$; **Significant at $p < .05$; ***Significant at $p < .01$.

relationships in the economic domain contrast with the insignificant relationships between childlessness and mental health (Allen et al., 2000; Zhang & Hayward, 2001).

Johnson and Favreault (2004) present evidence that older childless women and women who raised children outside of marriage had about the same economic status. The difference in findings may arise because that study compares childless women of any marital status with single and married mothers, whereas I restrict the comparison to unmarried childless women and unmarried mothers.

The finding for unmarried women is consistent with the hypothesis that the negative impact of motherhood on working-age women's wages (Budig & England, 2001; Waldfogel, 1997, 1998) has adverse long-term impacts on older mothers' economic status. Because fatherhood is not associated with lower wages (Lundberg & Rose, 2000), the greater wealth of childless unmarried older men probably is not attributable to wage differences but instead may arise from not paying the costs of raising children.

The OLS models predict that currently unmarried childless persons average \$51,000–\$69,000 more wealth. How does this compare with the average lifetime cost of raising a child to age 18? Espenshade (1984) estimates that this cost was \$206,000 in 1981 (in 2002 dollars). Because the average age of this study's sample in 1981 was about 50, Espenshade's figure may be a plausible indicator of how much the typical HRS parent spent to raise a child. Under this assumption, a childless person who might otherwise have raised one

child devoted 25%–33% of the cost savings to building assets and, conversely, 67%–75% to greater consumption. This suggests that childless elders implicitly tended to regard children much more like consumption goods than investments. Even a lower estimate of \$155,000 (25% lower) would suggest that childless individuals devoted most (55%–67%) of the cost savings to greater consumption.

One might also ask how the predicted wealth difference compares with the returns to education. The coefficient on years of education in the OLS wealth regression is 22,100 for unmarried men and 22,000 for unmarried women (both $p < .01$). This means that the greater wealth associated with childlessness is equivalent to having 2.3–3.1 more years of education. Similarly, for unmarried women, the predicted increase in income of \$6,243 associated with childlessness equals the predicted increase associated with 2.9 years more education.

The findings have several limitations. The models do not shed light on the behavioral mechanisms that underlie differences in economic status. For instance, to what degree is the greater wealth of childless unmarried persons attributable to life course differences in earnings and savings? None of the estimators adequately address selection on unobservable characteristics. Nonetheless, the regression-adjusted differences in economic status between older childless persons and parents are of interest, and the broad agreement across the simple regression, propensity score, and random effects models suggests a certain reliability to the findings.

Table 5. Estimated Coefficient for the Childless Dummy Variable for Single Women Using Different Estimators

Outcome	OLS or logit		Epanechnikov kernel matching ^a	Radius matching ^a	Random effects	
	β (SE)	Adjusted R^2	Difference (SE)	Difference (SE)	β (SE)	Adjusted R^2
Income	6,243*** (1,241)	.135	5,408*** (1,249)	7,153*** (1,384)	3,938*** (722)	.181
Log(income)	.152** (0.063)	.110	0.128** (0.059)	0.191*** (0.078)	.116*** (0.044)	.109
Net wealth (1,000s)	68.6*** (14.7)	.115	51.3*** (17.9)	78.4*** (20.7)	36.2*** (9.7)	.122
Log(net wealth)	.167 (0.115)	.147	0.104 (0.099)	0.245** (0.119)	.122 (0.080)	.152
Number of cases	3,770		3,770	3,770	18,604	

Notes: Bold shows the significant coefficients. Specifications are identical to those in Table 2, Model D, except no dummy for gender.

^a Bootstrapped standard errors (SEs). Propensity score models do not have goodness-of-fit statistics.

Significant at $p < .05$; *Significant at $p < .01$.

Table 6. Estimated Coefficient for the Childless Dummy Variable on Income and Wealth, Quantile Compared With OLS Regression

	OLS (from Tables 3–5)		Quantile, 10th percentile		Quantile, 25th percentile		Quantile, median		Quantile, 75th percentile		Quantile, 90th percentile	
	β (SE)	Adjusted R^2	β (SE)	Pseudo R^2	β (SE)	Pseudo R^2	β (SE)	Pseudo R^2	β (SE)	Pseudo R^2	β (SE)	Pseudo R^2
Married persons												
Income	2,532 (1,576)	.230	82 (859)	.061	1,465* (855)	.092	986 (1,186)	.144	3,108 (2,201)	.183	11,520*** (3,904)	.207
Log(income)	.033 (0.035)	.170	-.013 (0.043)	.105	.022 (0.031)	.138	.015 (0.031)	.178	.005 (0.028)	.192	.022 (0.043)	.178
Net wealth (1,000s)	15.2 (16.9)	.141	3.2 (4.5)	.033	-2.5 (6.7)	.057	14.0 (10.3)	.085	27.5 (22.0)	.110	56.0 (43.4)	.135
Log(net wealth)	.027 (0.052)	.217	.020 (0.108)	.131	-.030 (0.056)	.127	.049 (0.049)	.131	0.063 (0.050)	.126	.082 (0.060)	.115
Unmarried men												
Income	656 (2,122)	.148	527 (1,014)	.039	833 (1,172)	.109	-484 (1,831)	.154	1,087 (2,757)	.062	1,356 (5,112)	.189
Log(income)	-.006 (0.115)	.076	.079 (0.114)	.055	.041 (0.088)	.092	-.047 (0.077)	.142	-.015 (0.098)	.176	.028 (.126)	.173
Net wealth (1,000s)	51.3* (27.3)	.134	1.5 (2.5)	.011	8.3 (7.4)	.033	29.7* (16.5)	.075	67.4** (32.8)	.133	41.4 (74.2)	.181
Log(net wealth)	.157 (0.175)	.171	.281 (0.435)	.155	.133 (0.371)	.115	.132 (0.162)	.110	23.4** (0.107)	.126	.020 (.138)	.127
Unmarried women												
Income	6,243*** (1,241)	.135	649 (410)	.038	675* (397)	.056	2,769*** (896)	.096	6,351*** (1,101)	.147	12,845*** (2,856)	.162
Log(income)	.152*** (0.063)	.110	.039 (0.071)	.053	.062* (0.036)	.078	.184*** (0.048)	.125	.228*** (0.039)	.164	.230*** (0.062)	.162
Net wealth (1,000s)	68.6*** (14.7)	.115	.5 (1.2)	.005	8.7* (4.6)	.030	21.7*** (8.0)	.063	48.6*** (15.4)	.099	151.9*** (37.2)	.128
Log(net wealth)	.167 (0.115)	.147	-.147 (0.335)	.106	.152 (0.192)	.099	.210** (0.099)	.088	.186** (0.088)	.098	.393*** (0.109)	.101

Notes: Bold shows the significant coefficients. Specification and sample sizes are identical to Column 1 in Tables 3–5.
 *Significant at $p < .10$; **Significant at $p < .05$; ***Significant at $p < .01$.

Compared with women in the HRS who were born before 1950, women born since 1950 have had greater economic opportunities and are more likely to be childless. As a result, fertility decisions and the consequences of childlessness for younger cohorts of women (and their partners) may differ from those of the older women and men in the HRS. If so, extrapolating this study's findings to younger cohorts could be misleading.

The information in this study is but a starting point for researchers, policy makers, and others concerned about the determinants of childless elders' well-being and its relationship to the long-run financial demands on public programs. More definitive evidence on the impact of childlessness on well-being and demand for public programs requires extending the research in several substantive directions as well as more complete consideration of selection into childlessness.

Future research with the HRS data can fruitfully examine relationships between childlessness and poverty status, participation in Medicaid and other income-tested programs, receipt of Social Security disability benefits, long-term earnings, amount of specific assets (e.g., home equity, IRAs), purchase of long-term care insurance, transfers to nieces and nephews, and timing of retirement. Research on the relationship of childlessness to health status, use of health care services, and use of long-term care would provide evidence on other important aspects of well-being with possibly large consequences for public expenditures. Detailed analysis of the relationships among persons' marital histories, earnings histories, childlessness, and economic and health outcomes is needed.

This study determined childlessness based on respondents' biological children. In view of the importance of blended families, it would be useful to know whether step and adopted children affect elders' economic status. Does raising stepchildren during early and middle adulthood have similar long-run economic effects as raising one's own children? Do stepchildren transfer income or provide services to their needy step parents but stop doing so when their biological parent dies? Similar questions arise for adopted children. Currently, there is no evidence on these questions.

FUNDING

The research reported here was supported in part by the Center for Studies in Demography and Ecology at the University of Washington and National Institute of Aging grant 1R0SAG029594-01A2.

ACKNOWLEDGMENTS

Mark Long, participants in the University of Washington labor and development seminar, the editor, and the referees provided helpful comments and suggestions. I thank Anita Rocha for her skillful programming.

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REFERENCES

- Allen, K., Blieszner, R., & Roberto, K. (2000). Families in the middle and later years: A review and critique of research in the 1990s. *Journal of Marriage and the Family*, 62, 911–926.
- Aykan, H. (2003). Effect of childlessness on nursing home and home health care use. *Journal of Aging and Social Policy*, 15, 33–53.
- Bachrach, C. (1980). Childlessness and social isolation among the elderly. *Journal of Marriage and the Family*, 42, 627–637.
- Black, D., & Smith, J. (2004). How robust is the evidence on the effects of college quality? Evidence from matching. *Journal of Econometrics*, 121, 99–124.
- Budig, M. J., & England, P. (2001). The wage penalty for motherhood. *American Sociological Review*, 66, 204–225.
- Chevalier, A., & Viitanen, T. (2003). The long-run labour market consequences of teenage motherhood in Britain. *Journal of Population Economics*, 16, 323–343.
- Chou, K.-L., & Chi, I. (2004). Childlessness and psychological well-being in Chinese older adults. *International Journal of Geriatric Psychiatry*, 19, 449–457.
- Cwikel, J., Gramotnev, H., & Lee, C. (2006). Never married childless women in Australia: Health and social circumstances in older age. *Social Science and Medicine*, 62, 1991–2001.
- Dyer, W. T., & Fairlie, R. W. (2004). Do family caps reduce out-of-wedlock births? Evidence from Arkansas, Georgia, Indiana, New Jersey and Virginia. *Population Research and Policy Review*, 23, 441–473.
- Dykstra, P. A., & Wagner, M. (2007). Pathways to childlessness and late-life outcomes. *Journal of Family Issues*, 28, 1487–1517.
- Espenshade, T. J. (1984). *Investing in children: New estimates of parental expenditures*. Washington, DC: The Urban Institute Press.
- Feldstein, M. (2005). Structural reform of Social Security. *Journal of Economic Perspectives*, 19, 33–55.
- Folbre, N. (1994). *Who pays for the kids?* New York: Routledge.
- Freedman, V. (1996). Family structure and the risk of nursing home admission. *Journal of Gerontology: Social Sciences*, 51, S61–S69.
- Gertler, P., Levine, D., & Ames, M. (2004). Schooling and parental death. *Review of Economics and Statistics*, 86, 211–225.
- Hank, K. (2004). Effects of early life family events on women's late life labour market behaviour: An analysis of the relationship between childbearing and retirement in Western Germany. *European Sociological Review*, 20, 189–198.
- Hogan, D., & Eggebeen, D. (1995). Sources of emergency help and routine assistance in old age. *Social Forces*, 73, 917–936.
- Huang, C.-C. (2002). The impact of child support enforcement nonmarital and marital births: Does it differ by racial and age groups? *Social Service Review*, 76, 275–301.
- Imbens, G. (2004). Nonparametric estimation of average treatment effects under exogeneity: A review. *Review of Economics and Statistics*, 86, 4–29.
- Jeffries, S., & Konnert, C. (2002). Regret and psychological well-being among voluntarily and involuntarily childless women and mothers. *International Journal of Aging and Human Development*, 54, 89–106.
- Johnson, R., & Favreault, M. (2004). Economic status in later life among women who raised children outside of marriage. *Journal of Gerontology: Social Sciences*, 59, S315–S323.
- Koropecjy-Cox, T. (1998). Loneliness and depression in middle and old age: Are the childless more vulnerable? *Journal of Gerontology: Social Sciences*, 53, S303–S312.
- Koropecjy-Cox, T. (2002). Beyond parental status: Psychological well-being in middle and old age. *Journal of Marriage and Family*, 64, 957–971.
- Lakdawalla, D., Goldman, D., Bhattacharya, J., Hurd, M., Joyce, G., & Panis, C. (2003). Forecasting the nursing home population. *Medical Care*, 41, 8–20.
- Larsson, K., & Silverstein, M. (2004). Effects of marital and parental status on informal support and service utilization: A study of older Swedes living alone. *Journal of Aging Studies*, 18, 231–244.
- Lee, R., & Skinner, J. (1999). Will aging baby boomers bust the federal budget? *Journal of Economic Perspectives*, 13, 117–140.
- Levine, D., & Painter, G. (2003). The schooling costs of teenage out-of-wedlock childbearing: An analysis with a within-school propensity-score matching estimator. *Review of Economics and Statistics*, 85, 884–900.
- Lundberg, S., & Rose, E. (2000). Parenthood and the earnings of married men and women. *Labour Economics*, 7, 689–710.
- Mellor, J. (2001). Long-term care and nursing home coverage: Are adult children substitutes for insurance policies? *Journal of Health Economics*, 20, 527–547.
- National Research Council. (2001). *Preparing for an aging world: The case for cross-national research*. Panel on a Research Agenda and New Data for an Aging World, Committee on Population and Committee on National Statistics. Washington, DC: National Academy Press.
- Plotnick, R., Garfinkel, I., McLanahan, S., & Ku, I. (2007). The effect of child support enforcement on nonmarital childbearing. *Journal of Policy Analysis and Management*, 26, 79–98.
- Rempel, J. (1985). Childless elderly: What are they missing? *Journal of Marriage and the Family*, 47, 343–348.
- Robins, J., & Ritov, Y. (1997). Towards a curse of dimensionality appropriate (CODA) asymptotic theory for semi-parametric models. *Statistics in Medicine*, 16, 285–319.
- Rosenbaum, P. R., & Rubin, D. B. (1985). Constructing a control group using multivariate matched sample methods that incorporate the propensity score. *American Statistician*, 39, 33–38.
- Smith, J. A., & Todd, P. (2005). Does matching overcome Lalonde's critique of nonexperimental estimators? *Journal of Econometrics*, 125, 305–353.
- Szinovacz, M., DeViney, S., & Davey, A. (2001). Influences of family obligations and relationships on retirement: Variations by gender, race, and marital status. *Journals of Gerontology: Social Sciences*, 56, S20–S27.
- U.S. Census Bureau. (2008). *Fertility of American women*. (Current Population Reports, series P20–558). Table SF1 retrieved February 14, 2009, from <http://www.census.gov/population/www/socdemo/fertility.html#hist>
- Waldfogel, J. (1997). The effect of children on women's wages. *American Sociological Review*, 62, 209–217.
- Waldfogel, J. (1998). Understanding the "family gap" in pay for women with children. *Journal of Economic Perspectives*, 12, 137–156.
- Wolf, D. (1999). The family as provider of long-term care. *Journal of Aging and Health*, 11, 360–382.
- Wu, Z., & Hart, R. (2002). The mental health of childless elders. *Sociological Inquiry*, 72, 21–42.
- Wu, Z., & Pollard, M. S. (1998). Social support among unmarried childless elderly persons. *Journal of Gerontology: Social Sciences*, 53, S324–S335.
- Zhang, Z., & Hayward, M. (2001). Childlessness and the psychological well-being of older persons. *Journal of Gerontology: Social Sciences*, 56, S311–S320.

Received August 12, 2008

Accepted February 23, 2009

Decision Editor: Kenneth F. Ferraro, PhD